IN THE CLAIMS:

Please AMEND claims 13-15, 19, and 22-24; and

Please ADD claim 25 as shown below.

1-12 (Cancelled)

13. (Currently Amended) A computer-implemented method, the method comprising: ~~for~~

determining cluster ~~centres~~ centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points;

~~the method comprising:~~

performing a first iterative process for iteratively updating the weight vectors such that ~~they~~ the weight vectors move toward the cluster ~~centres~~centers;

performing a second iterative process for iteratively updating a second data structure utilizing results of the iterative updating of the first data structure; and

determining, ~~on the basis of~~ based on the second data structure, ~~the~~ several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster ~~centres~~ centers of the input data points.

14. (Currently Amended) A method according to claim 13, wherein each iteration in the first iterative process comprises:

selecting a winner weight vector for each data point on the basis of the distance between the data point and the weight vectors;, and

calculating a next value for each weight vector on the basis of the current value of the weight vector and a first neighbourhood function of the distance on the lattice structure between the weight vector and the winner weight vector;, and

wherein the second data structure comprises a first coefficient for each of the weight vectors in the lattice structure and each iteration in the second iterative process comprises calculating a next value of each first coefficient ~~on the basis of~~based on:

the current value of the first coefficient;, and

a combination of:

a first coefficient of the winner weight vector,

a second ~~neighbourhood~~neighborhood function of the distance on the lattice structure between the weight vector and the winner weight vector, and

an adjustment factor for adjusting convergence speed between iterations.

15. (Currently Amended) A method according to claim 13, wherein the ~~step of~~ determining the weight vectors that correspond to cluster ~~centres~~ centers comprises selecting local maxima in the second data structure.

16. (Previously Presented) A method according to claim 14, wherein the combination is or comprises multiplication.

17. (Previously Presented) A method according claim 14, wherein the second neighbourhood function is not monotonous.

18. (Previously Presented) A method according to claim 14, wherein the first coefficients are limited to a range [0,1] and the second neighbourhood function gives negative or positive values, respectively, for some distances.

19. (Currently Amended) A method according to claim 14, wherein the second neighbourhood function depends on ~~the~~ a number of prior iterations.

20. (Previously Presented) A method according to claim 13, wherein the input data points represent real-world quantities.

21. (Previously Presented) A method according to claim 14, wherein the first data structure is or comprises a self-organizing map.

22. (Currently Amended) A method according to claim 21, further comprising:

estimating an upper limit K for ~~the~~ a number of clusters in the self-organizing map;

defining a coefficient vector $\Theta i = (\theta_{i,1}, \theta_{i,2}, \ldots \theta_{i,K})$ for each weight vector i in the self-organizing map, the coefficient vector comprising K second coefficients $\theta_{i,l}$, each of which represents a weighting between the weight vector i and a label l; and

assigning cluster label l to weight vector i if:

$l = arg\ max\ \theta_{i,k}$.

$$1 \leq k \leq K$$

23. (Currently Amended) A method according to claim 22, wherein each iteration in the second iterative process comprises calculating a next value of each second coefficient ~~on the basis of~~based on the current value of the second coefficient and a combination of:

a coefficient of the winner weight vector,

a third neighbourhood function of distance, and

an adjustment factor for adjusting convergence speed between iterations.

24. (Currently Amended) A computer-readable program product comprising a computer program code embodied on a computer-readable medium, wherein executing the computer program code in a computer causes the computer to carry out ~~the steps of the method according to claim 13~~:

determining cluster centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points;

performing a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers;

performing a second iterative process for iteratively updating a second data structure utilizing results of the iterative updating of the first data structure; and

determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster centers of the input data points.

25. (New) A computer system, comprising:

first determination means for determining cluster centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points;

first performance means for performing a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers;

second performance means for performing a second iterative process for iteratively updating a second data structure utilizing results of the iterative updating of the first data structure; and

second determination means for determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster centers of the input data points.